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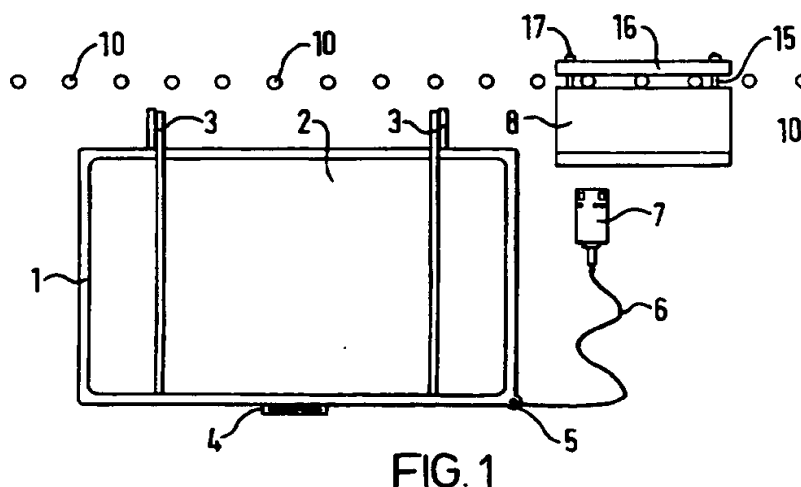
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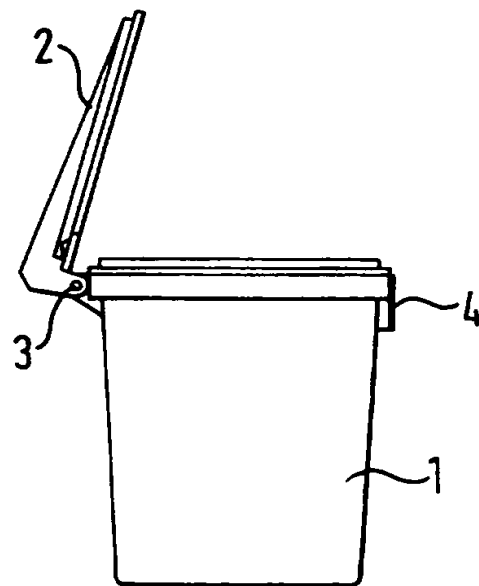
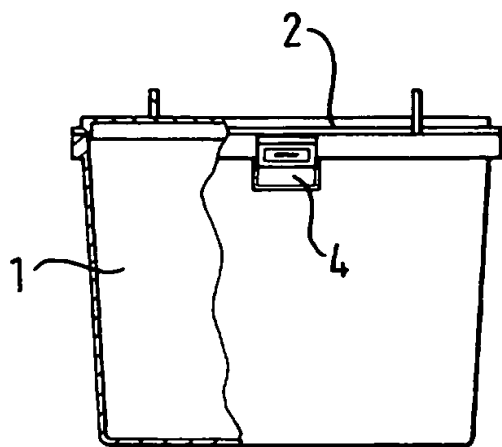
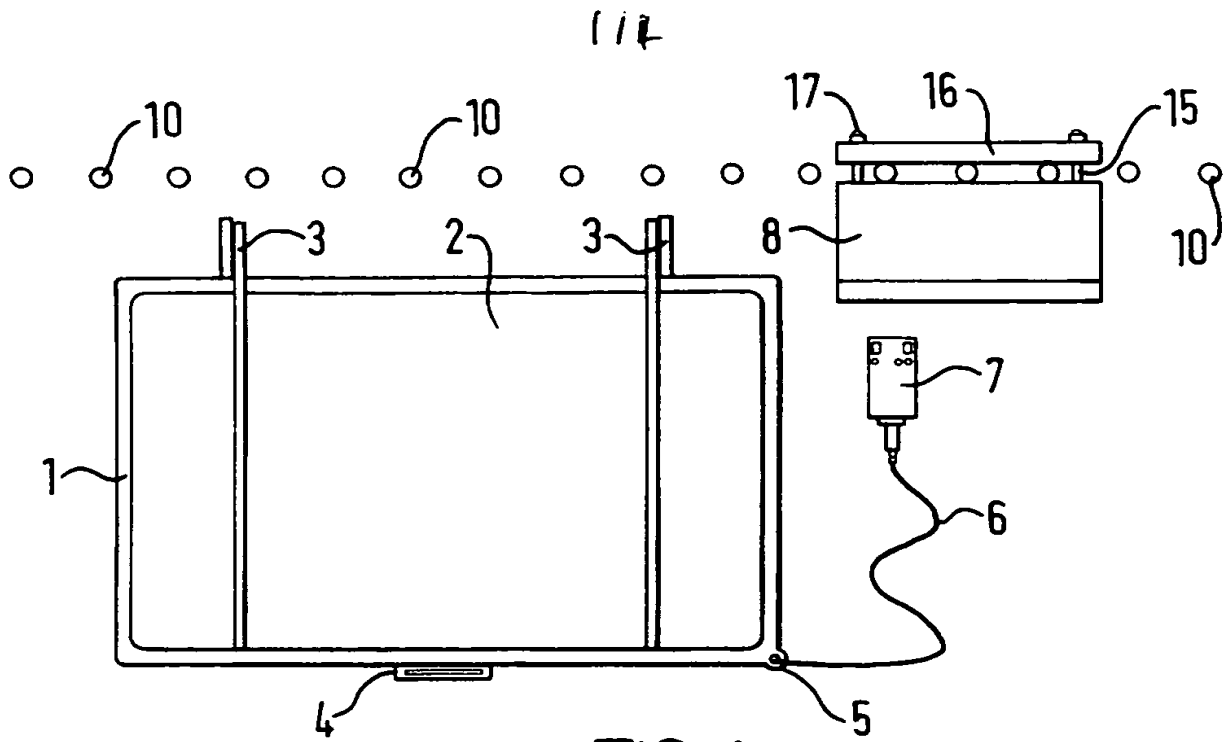
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(54) Abstract Title
Container lockable to an anchorage point

(57) A secure delivery system comprising a lockable container 1 having an attachment means for releasably connecting the container to a lockable anchoring fixture 8, preferably the attachment means consists of a flexible link eg. chain or cable, a plug 7 at one end for fitting in a socket (9, fig.5) of the anchoring feature, a release means being provided. The release means may comprise an electronic keypad activating a release code (12, fig.5). The plug may be a planar member (7a, figs.6 and 7) with at least one aperture (18, figs.6 and 7) therein and may be entered into "deliveries in" or "deliveries out" sockets on the anchor point. The same plug may also be used to unlock the container. Alternatively the attachment means comprises an integral part of the container with a hole therein and a hasp secured to the delivery site, said container part and hasp being lockable with a padlock. A method of making deliveries incorporating the delivery system is also claimed.



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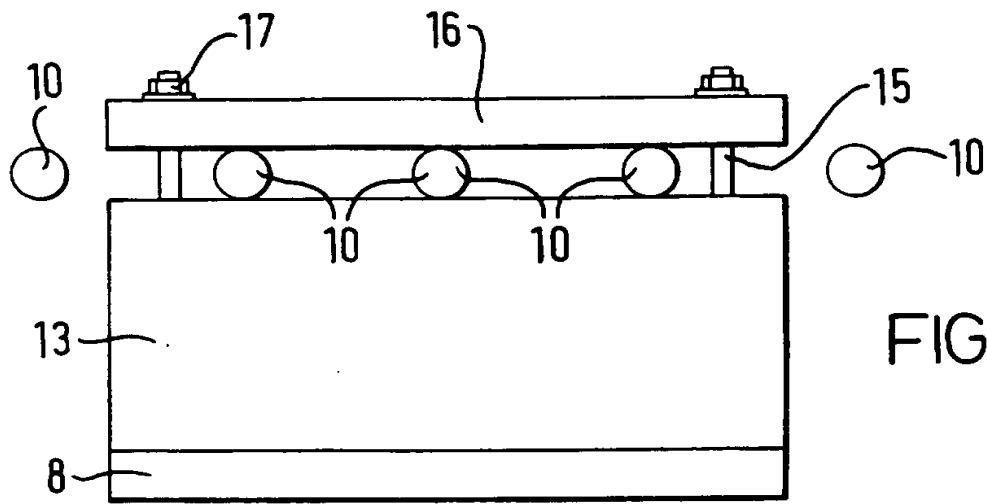


FIG. 4

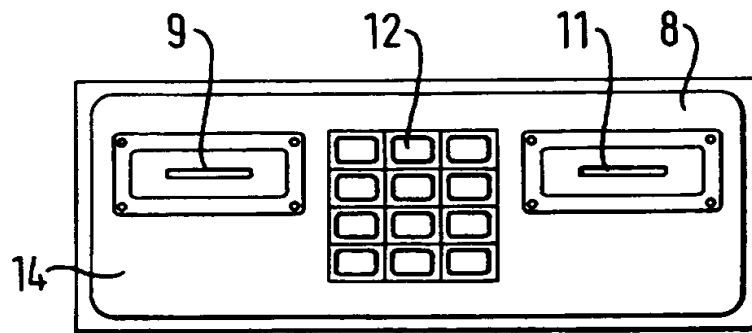


FIG. 5

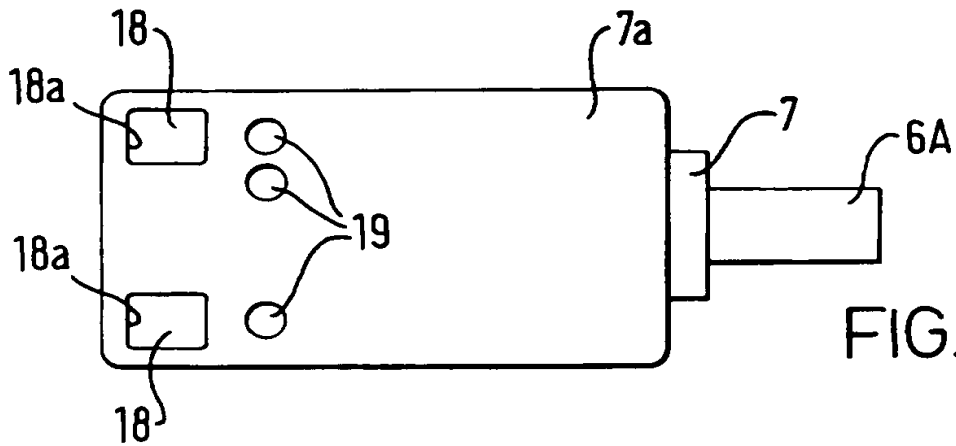


FIG. 6

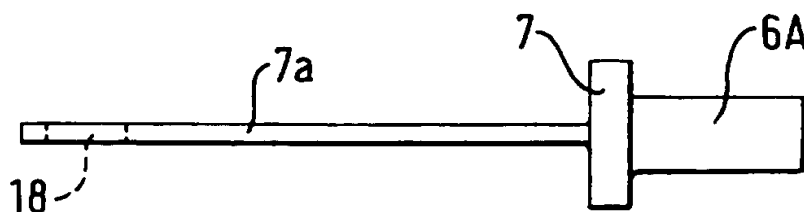


FIG. 7

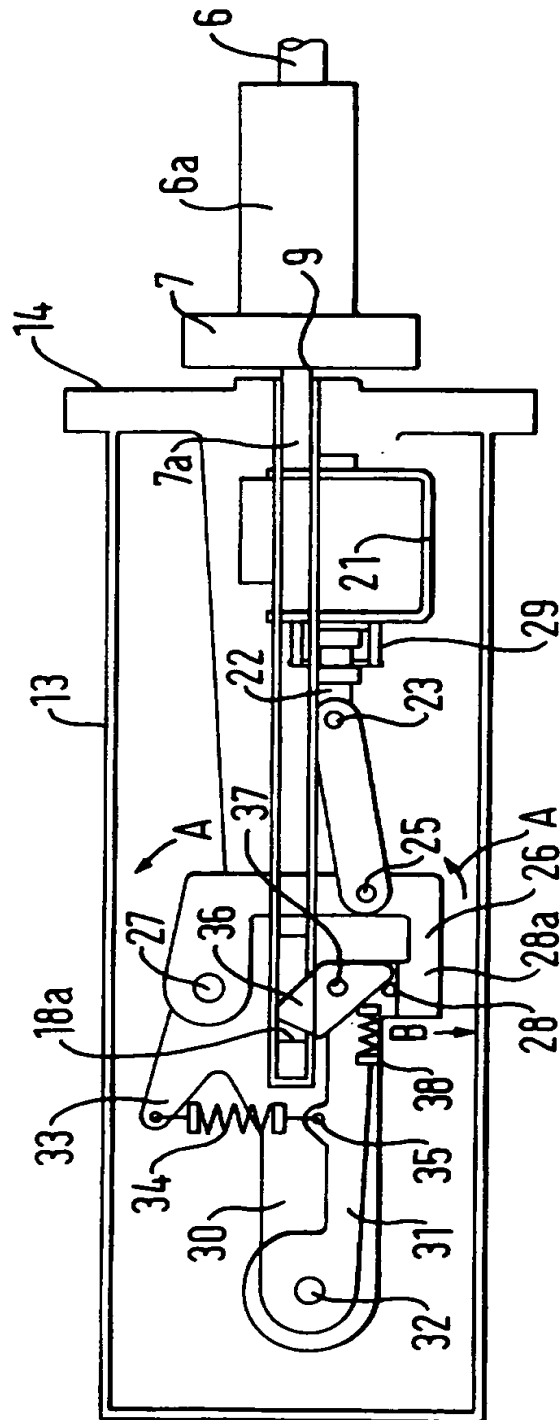


FIG. 8

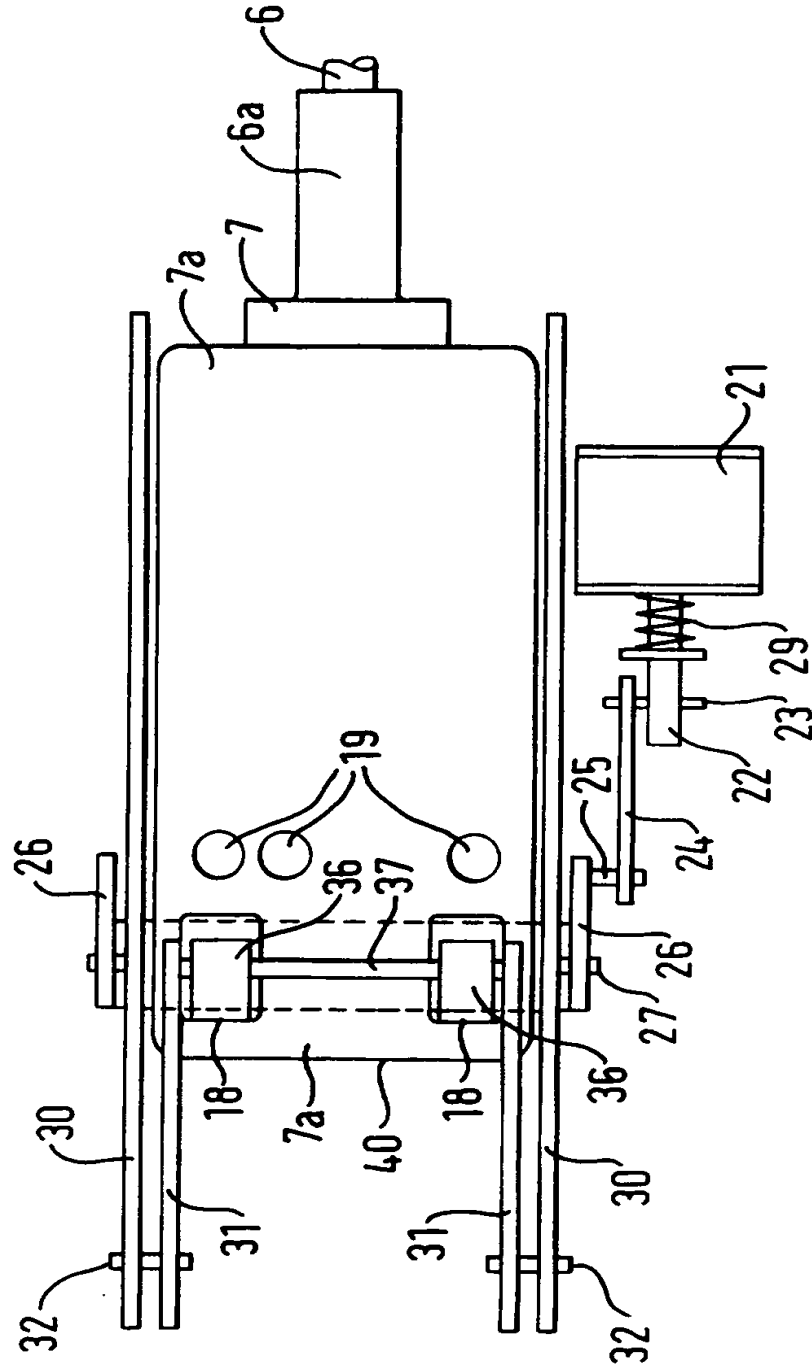


FIG. 9

DELIVERY METHOD AND CONTAINER FOR USE THEREWITH

This invention relates to a securable home delivery container and associated equipment and also to a method of delivering and leaving goods
5 at a delivery address in a secure fashion.

On-line shopping and subsequent delivery of the goods to the recipient's delivery address is becoming increasingly popular as customers prefer the convenience of ordering goods using their on-line computer systems via the
10 Internet.

Some supermarkets already offer a home delivery service which allows customers to telephone their order or order it using the Internet. On receipt of the order, a staff member at the supermarket assembles the ordered items
15 ready for delivery to the customer's delivery address. However, this can be extremely inefficient for the supermarket if the recipient is not at home at the time of the delivery. This is a particular problem where access to the interior of the delivery address is denied at the time of delivery as the goods cannot usually be left unattended so they have to be taken back to the
20 supermarket and further delivery arrangements made.

Supermarkets are increasingly investing in computer technology to enable customers to order goods using their personal PC's but the problem of providing for secure delivery still has to be solved.
25

It is an object of the present invention therefore to provide a method of home delivery using a securable delivery container which overcomes or substantially reduces the disadvantages of the prior art.

At its broadest, the invention provides a secure delivery system comprising a lockable container for the goods to be delivered to a delivery site, the container having attachment means for releasably connecting the container
5 to a lockable anchoring fixture or docking station irremovably mounted at the delivery site.

Preferably the attachment means comprises a flexible link such as a chain or cable.

10

At its simplest, the lockable anchoring fixture or docking station can be a padlock and hasp arrangement, one part of the hasp either being part of the container or being attached to the end of the flexible link and the other part thereof being provided at the delivery site, said two parts being lockable
15 together by means of the padlock.

In a preferred embodiment of the invention, the flexible link has a plug at one end which is received in a socket provided on the lockable anchoring fixture, said fixture including release means operable by a user to release
20 the plug from the socket.

Preferably the plug is automatically locked in the socket when inserted therein. In a preferred embodiment, the release means is an electronic key pad operable to release a mechanical connection between the plug and
25 socket when the appropriate keys on the pad have been selected by the user corresponding to the code programmed into the electronic key pad to release the lock.

The plug can take any convenient form but in a preferred embodiment it is a planar member with one or more apertures therein which receive a locking member on the lockable anchoring fixture or docking station, the or each locking member having means associated therewith operable on receipt of a validated code unique to the user to withdraw the or each locking member from engagement with its aperture in the plug to allow the plug to be removed from the socket.

The lockable anchoring fixture preferably has a "deliveries-in" socket and an "empties-out" socket, the plug being released from the "empties-out" socket when a master code known only to the collecting person is entered into the keypad. The anchoring fixture or docking station can however include more than one "deliveries-in" or "empties-out" socket.

Conveniently, the plug at the end of the flexible link is also operable to release the lock on the container.

Preferably the lockable anchoring fixture or docking station has means thereon for securing it to the wall or railings at the delivery address so that it cannot be removed therefrom without special tools.

The invention also provides a method of making deliveries to a delivery site using a lockable delivery container comprising the steps of:

- a) filling the container with the goods to be delivered and locking the container;

- b) delivering the container to the delivery address and attaching and locking the delivery container to a lockable anchoring fixture or docking station irremovably mounted at said address;
- c) the recipient actuating means to release the container from the lockable anchoring fixture at the delivery address and unlocking it to gain access to the goods in the container.

Preferably, a flexible attachment member is connected to the container which has a plug at one end thereof which can be inserted into a socket in the irremovable fixture or docking station to lock and automatically retain the plug in the socket until released.

Conveniently, after the plug has been released from the socket, it is inserted into the lock on the container to release said lock and allow access to the goods therein.

With the present invention, it is no longer necessary for the purchaser to make arrangements to be at home at the time of the delivery which may be impossible or inconvenient as the lockable container of the present invention overcomes this problem by providing a flexible yet secure method for individuals to receive their delivered goods when they are not in. After it has been emptied, the container can be reattached to the docking station ready for recollection by the delivery van.

A preferred lockable container and its method of use will now be described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a schematic plan view of a lockable delivery container and associated anchoring fixture or docking station of the present invention; Figure 2 is a front view (partly cut away) of the lockable delivery container shown in Figure 1;

5 Figure 3 is an end view of the lockable container shown in Figure 2 with the lid open;

Figure 4 is an enlarged view of the anchoring fixture or docking station shown in Figure 1;

Figure 5 is a front view of the fixture shown in Figure 4;

10 Figure 6 is an enlarged plan view of the plug which forms part of the delivery system shown in Figure 1;

Figure 7 is a side view of the plug shown in Figure 6;

Figure 8 is an enlarged schematic cut away view of the lockable anchoring fixture or docking station shown in Figures 4 and 5 with the plug inserted
15 in the socket provided therein; and

Figure 9 is a plan view of the mechanism of Figure 8 with parts thereof omitted for ease of illustration.

Referring to the drawings, there is shown in Figure 1 a securable delivery
20 system of the present invention which comprises a lockable container 1 having a lid 2 pivotally attached thereto by a hinge 3. The lid 2 can be locked in its closed position by means of lock 4 at the front thereof. The container is made from a very strong plastics material such as PVC that is light and tough enough to ensure a long life in use but is also waterproof.

25 Depending on its use, it may also incorporate some form of insulating lining material. Preferably it is shaped as illustrated to enable a number of containers to be nested together and stacked on top of each other efficiently.

The lid 2 has an aperture 5 in one upper corner thereof to which a flexible link, preferably a metal cable or chain 6, is irremovably attached. A plug 7 is connected to the free end of the cable 6 and its construction will be described in more detail later. The flexible link can however be attached to the container body.

A lockable anchoring fixture or docking station 8 is attached to railings 10 at the delivery address by means of a plate 16 which clamps the fixture 8 to the railings 10 by means of securing nuts and bolts 15,17 which cannot be removed without the use of a special tool after they have been tightened. As these bolts do not form part of the present invention and are well known, no further description thereof will be given here.

If the delivery address does not have railings to which the fixture or docking station 8 can be attached in the manner illustrated, it can be securely mounted in a wall or on an immovable post or attached to any other convenient immovable object in known manner. The main point about the fixture 8 is that it must be irremovably secured at the delivery address. For the avoidance of doubt, it should be noted that the illustrated arrangement is given by way of example only.

The lockable anchoring fixture or docking station 8 is better illustrated in Figures 4, 5 and 8 and it can be seen that it comprises a metal casing 13 having a front face 14 on which are provided an electronic keypad 12 and a slot or socket 9 for "deliveries-in" and preferably a slot or socket 11 for "empties-out". More than one socket of each type can however be provided or even multiple sockets i.e. doubles or trebles.

The plug 7 is shown more clearly in Figures 6 and 7 and it can be seen that it comprises a planar rigid body 7a with preferably two rectangular apertures 18 at one end thereof the purpose of which will be described shortly. The body 7a also includes a plurality of circular holes 19 whose purpose will also be described later. Whilst three holes are illustrated, it is envisaged that any number of holes 19 can be provided. The actual number will depend on the type of lock 4 used on the container as it is these holes which cooperate with the tumblers in said lock to open it in known manner.

Each individual plug 7 will have its own individual combination and arrangement of holes 19 to enable that plug 7 to be used to open the lock 4 on that particular container 1.

Referring now to Figures 8 and 9, there is shown a preferred locking mechanism for securing the plug 7 in the slot 9 or 11.

A pair of chassis members 30 are provided inside the anchoring fixture 8 on either side of each slot 9 or 11. A locking lever 31 is pivotally attached by a pivot pin 32 to each chassis member 30 and has a locking detent 36 pivotally attached at 37 to its end remote from the pivot 32. Each detent 36 is biased to rotate clockwise by a spring 38 and is mounted on the lever 31 so that it can only rotate in an anticlockwise direction, clockwise rotation being prevented due to the bottom of the detent 36 abutting against part 28. Each chassis member 30 also includes an arm 33 and a spring 34 extends between said arm 33 and attachment point 35 on the lever 31 to bias it upwardly so that the apex of the detent 36 can protrude through the corresponding rectangular hole 18 in the plug 7. With the illustrated arrangement, when the plug 7 is inserted in a slot or socket 9 or 11, its

leading edge 40 will engage each detent 36 and pivot it anticlockwise until the plug 7 is fully inserted in the slot when each detent 36 will spring up into the hole 18 under the action of its spring 38 to retain and lock the plug 7 in place. If the user tries to withdraw the plug 7 from the socket 9 or 11, movement is prevented as the detents 36 cannot rotate in a clockwise direction so the plug 7 is held in the socket 9 or 11.

As can be seen more clearly in Figure 8, each lever 31 is maintained in its raised locked position by means of foot portion 28a on C-shaped link 26 which is positioned beneath the bottom of the detent 36 and engages therewith. C-shaped link 26 is pivotally connected at 25 to a further link member 24 itself pivotally connected by pin 23 to actuator 22 of a solenoid 21, the actuator 22 being biased by spring 29.

With the illustrated arrangement, when actuator 22 on the solenoid 21 is withdrawn, and moved to the right, the link 24 pivots the link 26 anticlockwise in the direction of arrow A thereby withdrawing foot 28a of link 26 from beneath the detent 36. As a result, a user can withdraw the plug 7 from the socket 9 or 11 as each detent 36 and the levers 31 to which they are attached will be pushed downwardly in the direction of arrow B due to the engagement of edges 18a of holes 18 in the plug 7 with the detents 36 as the plug is withdrawn. The solenoid is operated in response to a correct operating code being keyed by the user into the keyboard 12 in known manner. After removal of the plug 7 from the socket, the levers 31 and the detents 36 attached thereto are returned to their raised position shown in Figure 8 under the action of the spring 34. Furthermore, the solenoid 21 is deactivated and returns the locking member 26 to its position

shown in Figure 8 under the action of spring 29 ready for reinsertion of the plug 7.

The delivery system of the present invention is used in the following
5 manner. A customer places his or her order via the telephone or Internet
and the order is transmitted to the supermarket who then assembles it and
places the items in a delivery container 1. The container 1 is then closed
and the lock 4 engaged and the now loaded container can be placed on the
delivery vehicle. The delivery driver then leaves the filled container 1
10 outside the delivery address and inserts the plug 7 into the socket 9
provided in the front face of the docking station or anchoring fixture 8.

The delivered goods are now secured in position at the delivery address and
cannot be removed therefrom until the recipient keys in the correct code on
15 the keypad 12. Having done this, the plug 7 is unlocked and can then be
withdrawn from the "deliveries-in" socket, and the container 1 is then free
to be transferred into the delivery address. Once inside, the user then
inserts the plug 7 into the lock 4 whereby the tumblers in the lock 4 engage
with the series of holes 19 on the plug which are unique to that customer to
20 open the lock 4.

Once the box has been emptied, the recipient can then place it outside again
and secure it to the anchoring fixture or docking station 8 by inserting the
plug 7 into the "empties-out" socket 11. The empty container 1 is now
25 secure again and cannot be removed from the anchoring fixture 8 until the
delivery driver inserts an appropriate master code on the keypad 12 which
actuates the solenoid 21 to move the lever 26 anticlockwise and allow the
locking detent 36 attached to lever 31 to be pushed downwardly out of

engagement with the holes 18 thereby allowing removal of the plug 7 from the socket 11 in the same manner as has been described with reference to the "deliveries-in" socket 9.

- 5 Preferably means are also provided on the container 1 to accept a seal or security tag which can be inserted by the supermarket prior to delivery to provide a visual indication to the customer that the container 1 has not been tampered with from the moment it leaves the warehouse/supermarket until it is removed from the delivery location at the delivery address.

10

Preferably the delivery socket 9 also includes electronic means to record the date and time of delivery and also means for printing a record of all deliveries made.

- 15 As a number of supermarkets will be using the system of the invention, each supermarket will require a different master code so the collection socket must be capable of accommodating different Master codes. The supplier of the lockable containers will therefore need to keep a register of these master codes and also those of the users in case they forget their code
20 and need to release their shopping.

- The lock must be capable of being opened a number of times. For instance, the recipient could remove all the food and close the container 1 and reattach it to the fixture 8 only to discover that one of the purchases is
25 damaged or that one of the internal boxes belonging to the supermarket which needs to be returned has been left out so the container needs to be re-opened. The user must therefore be able to detach it from the docking station 8 and re-open the container 1. This can be done by arranging for the

“deliveries-in” and “empties-out” slots to be opened simultaneously in response to a correct code being entered on the keypad.

Claims

1. A secure delivery system comprising a lockable container for the goods to be delivered to a delivery site, the container having attachment
5 means for releasably connecting the container to a lockable anchoring fixture secured to the delivery site.
2. A delivery system as claimed in claim 1 wherein the attachment means comprises a flexible link.
- 10 3. A delivery system as claimed in claim 2 wherein the flexible link is a chain or cable.
4. A delivery system as claimed in claim 1 wherein the attachment
15 means comprises an integral part of the container with a hole therein and a hasp secured to the delivery site, said container part and hasp being lockable with a padlock.
5. A delivery system as claimed in claim 2 or claim 3 wherein the
20 flexible link has a plug at one end which is received in a socket provided on the lockable anchoring fixture, said lockable fixture including release means operable by a user to release the plug from the socket.
6. A delivery system as claimed in claim 5 wherein the plug is
25 automatically locked in the socket when inserted therein.
7. A delivery system as claimed in claim 5 or claim 6 wherein the release means comprises an electronic keypad operable to release the

connection between the plug and socket when the appropriate keys on the pad have been selected in accordance with the users unique code.

8. A delivery system as claimed in any of claims 5-7 wherein the plug
5 is a planar member with at least one aperture therein, the or each of which
receives a locking member on the lockable anchoring fixture, the or each
locking member having means associated therewith operable on receipt of a
validated code unique to the user to withdraw the or each locking member
from engagement with the aperture in the plug to allow the plug to be
10 removed from the socket.

9. A delivery system as claimed in any of claims 5-7 wherein the
lockable fixture has a "deliveries-in" socket and an "empties-out" socket,
the plug being released from the "empties-out" socket by a master code.
15

10. A delivery system as claimed in any of claims 5-9 wherein the plug
is also operable to release the lock on the container.

11. A delivery system as claimed in any preceding claim wherein the
20 lockable anchoring fixture has means thereon for securing it to the wall or
railings at the delivery address.

12. A method of making deliveries to a delivery site using a lockable
delivery container comprising the steps of:

- 25 a) filling the container with the goods to be delivered and locking
 the container;
- b) delivering the container to the delivery address and attaching
 and locking said container to an anchoring fixture thereat;

- c) the recipient operating means to release the container from the fixture and unlock it to gain access to the goods therein.

13. A method as claimed in claim 11 comprising the step of inserting a
5 plug provided on a flexible attachment member connected to the container
into a socket in the anchoring fixture, the lock automatically retaining the
plug in the socket until released by the recipient.

14. A method as claimed in claim 13 comprising the step of inserting the
10 plug after its release from the socket into the lock on the container to
release said lock and allow access to the goods therein.



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Claims searched: All

Examiner: Mark.A.Pullen
Date of search: 28 October 1998

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): A4G, B8P (PM, PT), E2A (AARR, ALP), E2X X7

Int Cl (Ed.6): E05G 1/00, A45C (13/18, 13/20)

Other: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	EP 0010343 A1 (WHIRLY BIRD SERVICES LTD) see fig. 1	1
X	EP 0492115 A1 (SAKAI, NOBUYO) see fig. 1	1,11
X	WO 87/06298 A1 (McSWEENEY) see page 1 lines 1-20	12
X	US 4474116 (CASTENADA & CASTENADA) see figs.1&2 and col 5 lines 53-54	1-3

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